

# ABSTRACT

An adaptive antenna radio communication device comprises a divided band direction estimating unit (4) for estimating the direction by calculating the cross correlations between a pilot signal and sub-carrier signals of the respective divided bands received by an array antenna (1) and calculating a spatial profile from correlation matrices determined by combining the correlation values between antenna elements of the different sub-carriers according to the output of the cross correlation calculation; a divided band array weight creating unit (5) for creating a weight of a receive array having a directional beam in the direction of estimation for each divided band; and a sub-carrier directivity creating unit (6) for creating a directivity by multiplication-combining the created receive array weight with the corresponding sub-carrier signal. Thus, the accuracy of direction estimation for each divided band can be ensured even in frequency selection fading. Directivity control most suitable for the entire band is made by changing the directivity control method in accordance with the angle spread of the entire band, and multiuser interference is reduced.